Acknowledgments

- NIH Office of Extramural Research
  - Mike Lauer, Katrina Pearson

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  - Jon Lorsch, Alison Gammie, Christa Reynolds

- Scientific Workforce Diversity
  - Charlene Le Fauve, Alison Davis, Lauren Milligan, Nicole Lang

NIH Scientific Workforce Diversity 2014-2019 Actions and Progress

Presentation Outline

- **ACD Working Group on Diversity in the Biomedical Research Workforce recommendations and key data points (endorsed by the ACD in June 2012)**

- **Implementation of 2012 ACD recommendations**

  - Applications/funding: R01, K, fellowships, training awards
  - National diversity trends - PhD recipients
  - Diversity Program Consortium (BUILD, NRMN)
  - Tracking and evaluation of diversity metrics (CEC)

- **2018 ACD recommendations focused on career-independence transition through institutional change**

Great Minds Think Differently

NIH National Institutes of Health

NIH Scientific Workforce Diversity Strategic Plan 2016-2020

NIH Scientific Workforce Diversity Strategic Plan

Key Data Points Identified by the ACD WGD BRW Context for Assessing Progress

National Data

- Small # URGs in STEM

- 504/year*

Research Project Grants** (R01eq)

- *Applications*
  - AA/B   1.3%
  - Hisp   3.4%

- *Awards*
  - AA/B   <1%
  - Hisp   2.5%

K Awards (K01, K08, K23)

- AA/B 4%

- Hisp 5%

NIH Training Awards

- Pre-doc F30/F31
  - AA/B   1.3%
  - Hisp   3.4%

- Post-doc F32/T32
  - AA/B   1.3%
  - Hisp   3.4%

AA/B applicants 13 % points less likely to be awarded R01

URG - 10% all pre-doc awards
URG - 8.1% NIH-sponsored post-docs

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* Biological science, chemistry, and physics – 2000-2008 (NSF women, minorities and people with disabilities report 2011)

**Note: Although generally NIH awards are made to institutions, as the applicants and awardees of NIH funding, for purposes of this presentation, the terms "applications," "applicants," and "awardees" reference those individuals designated as senior/key personnel on NIH applications and/or awards, respectively.

Original 2012 ACD WGD BRW Recommendations

PIPELINE

#3   **additional <u>financial support</u> for undergraduates**

#1   systematic review and evaluation of all diversity programs

#4   assess reason for **<u>disparity in grant awards</u>**

#6   establish ACD Diversity Working Group

#2   develop interest in STEM in K-12 and beyond

MENTORING

#5   establish a system of **<u>mentorship "networks"</u>**

PEER REVIEW

#9   establish ACD Diversity Working Group Subcommittee on Peer Review

#10   implicit bias/diversity awareness training for scientific review and program officers

#11   design experiment to determine effects of application anonymization

#7   more detailed explanation for unscored grant applications

INFRASTRUCTURE

#8   establish bold, **<u>multi-year awards to enhance diversity</u>** at under-resourced institutions

#12   appoint chief diversity officer and **<u>establish office of diversity</u>**

#13   more comprehensive search for tenure-track investigators (e.g., Stadtman search)

Interpreting R01 Success Rates in Context of Decline in Pay Lines:
Gap Persists but is Slightly Narrowed

30% OF FUNDING GAP ATTRIBUTABLE TO APPLICANT & REVIEWER TOPIC PREFERENCE
(Hoppe, et al. in press)

Success rate for Type 1 R01 (Ginther et al. 2011):
FY 2000 – 2006

    African American applicants: 17.1%

    White applicants: 29.3%

Differential success (AA:W)   0.58

Success rate for Type 1 R01-Equivalent:
FY 2013 - 2018

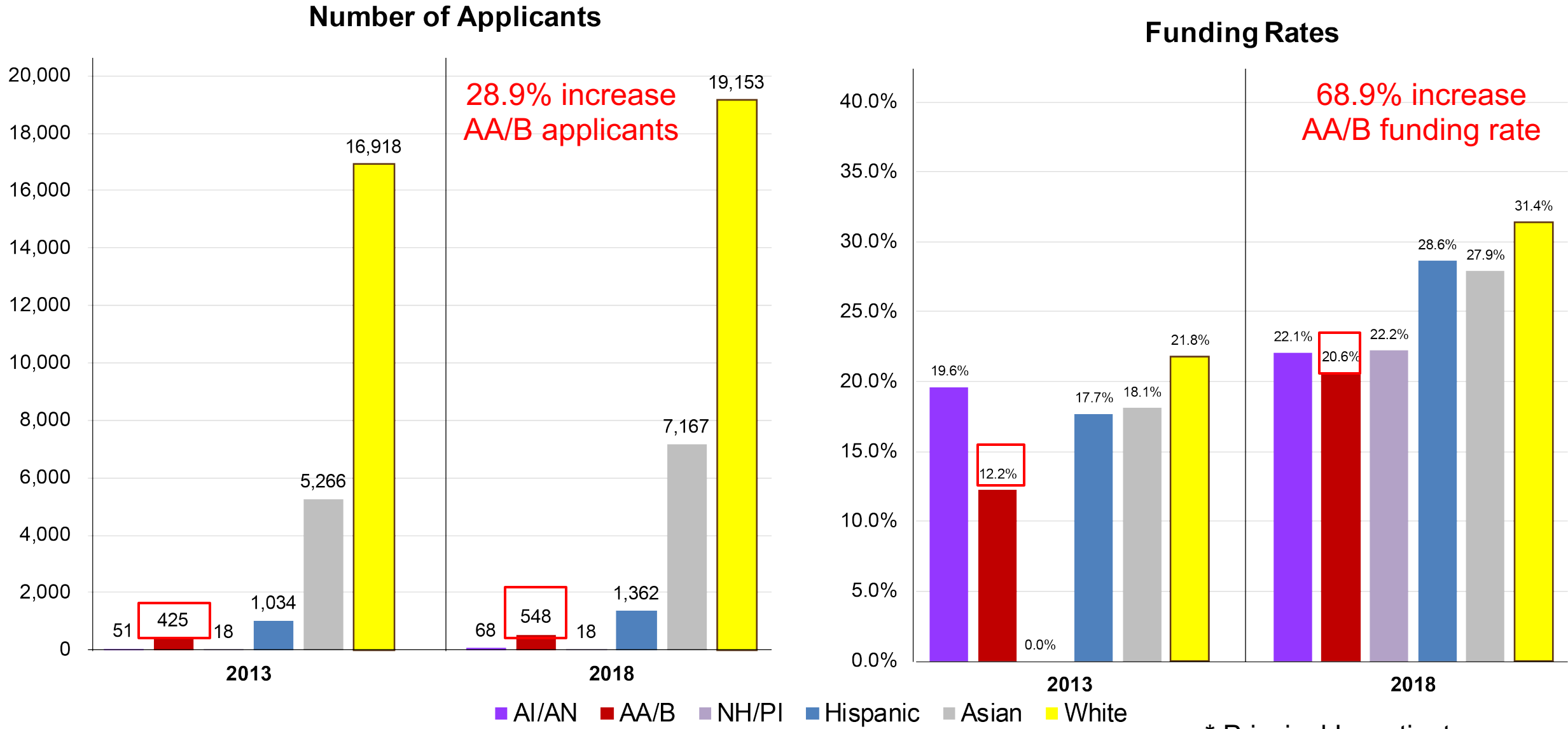   African American applicants: 11.3%

    White applicants: 18.1%

Differential success (AA:W)   0.63

Cochran-Mantel-Haenszel statistics

Effect of race adjusted for time period: 184.45, $p < 0.0001$

R01eq Applicants* and Funding Rates (Type 1 and 2) Race/Ethnicity
FY2013 and FY2018

Number of Applicants

28.9% increase
AA/B applicants

Funding Rates

68.9% increase
AA/B funding rate

Legend: AI/AN | AA/B | NH/PI | Hispanic | Asian | White

* Principal Investigators
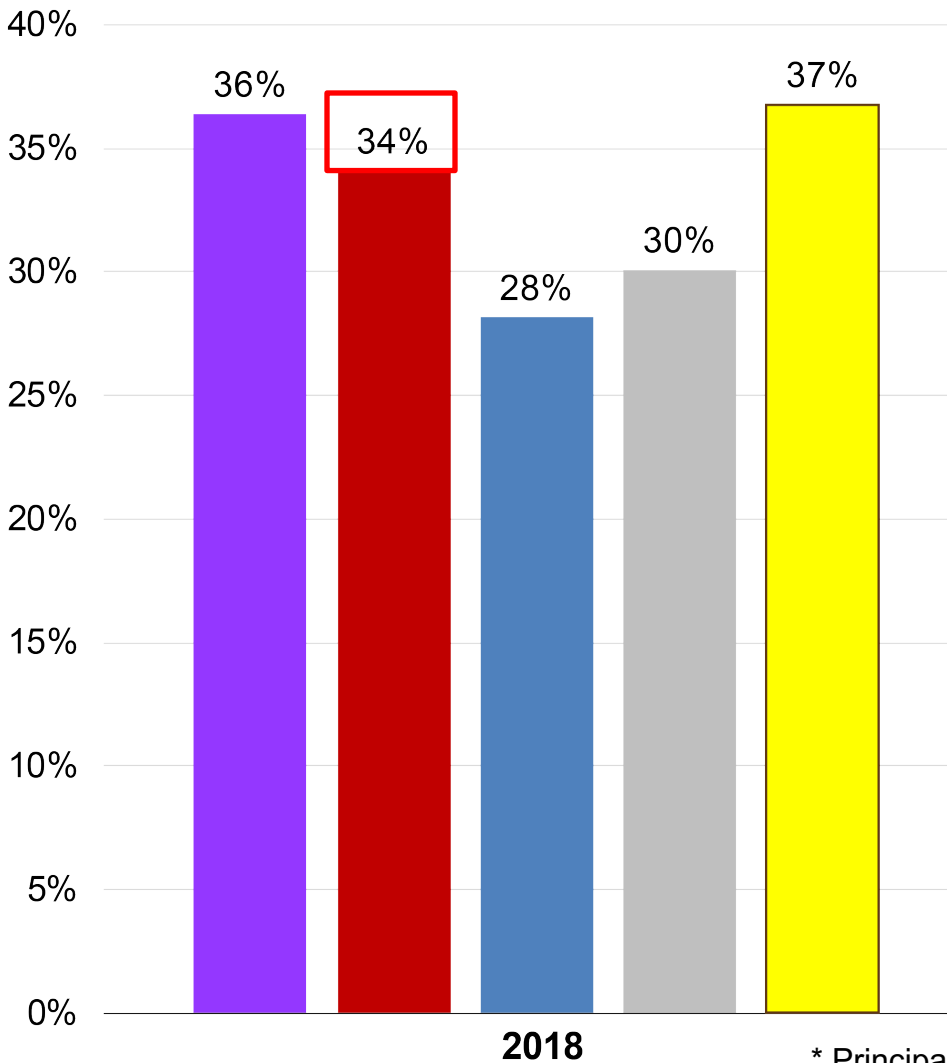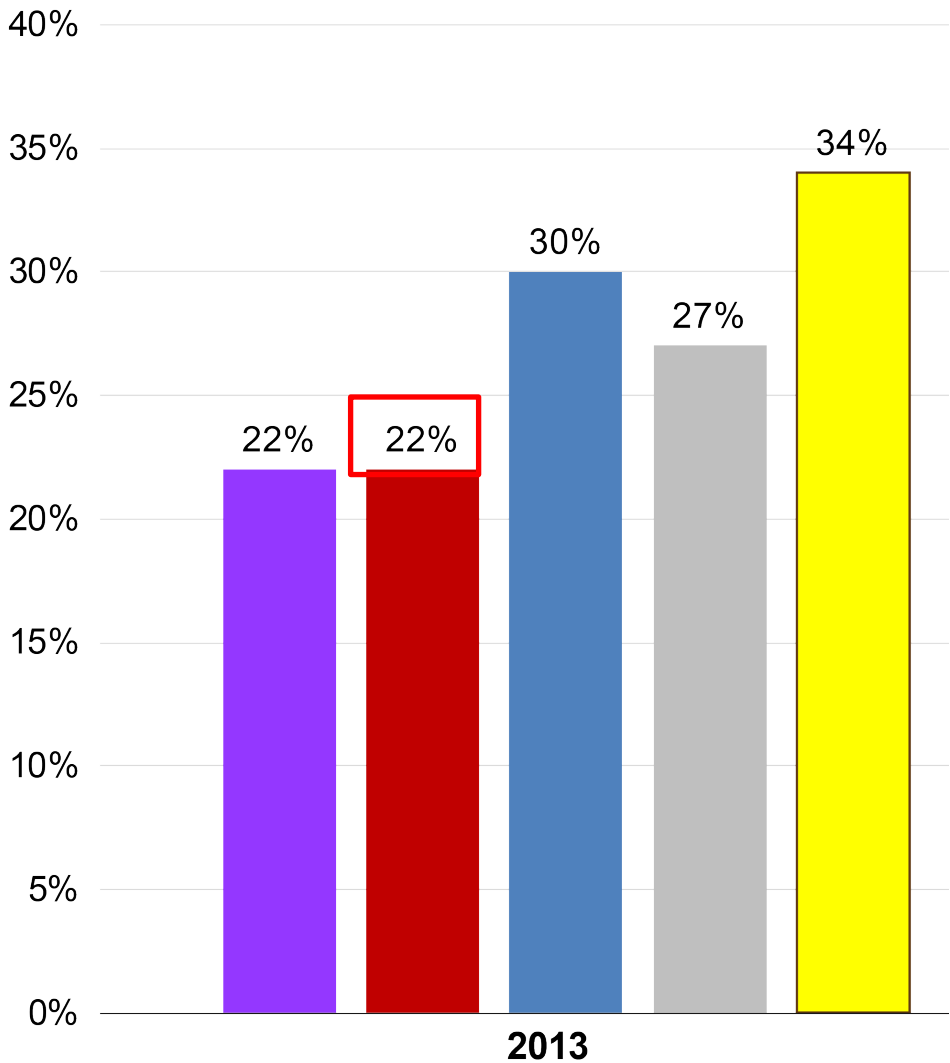
African-American and Hispanic/Latino R01eq Awardees* (Type 1 and 2) FY2013 and FY2018
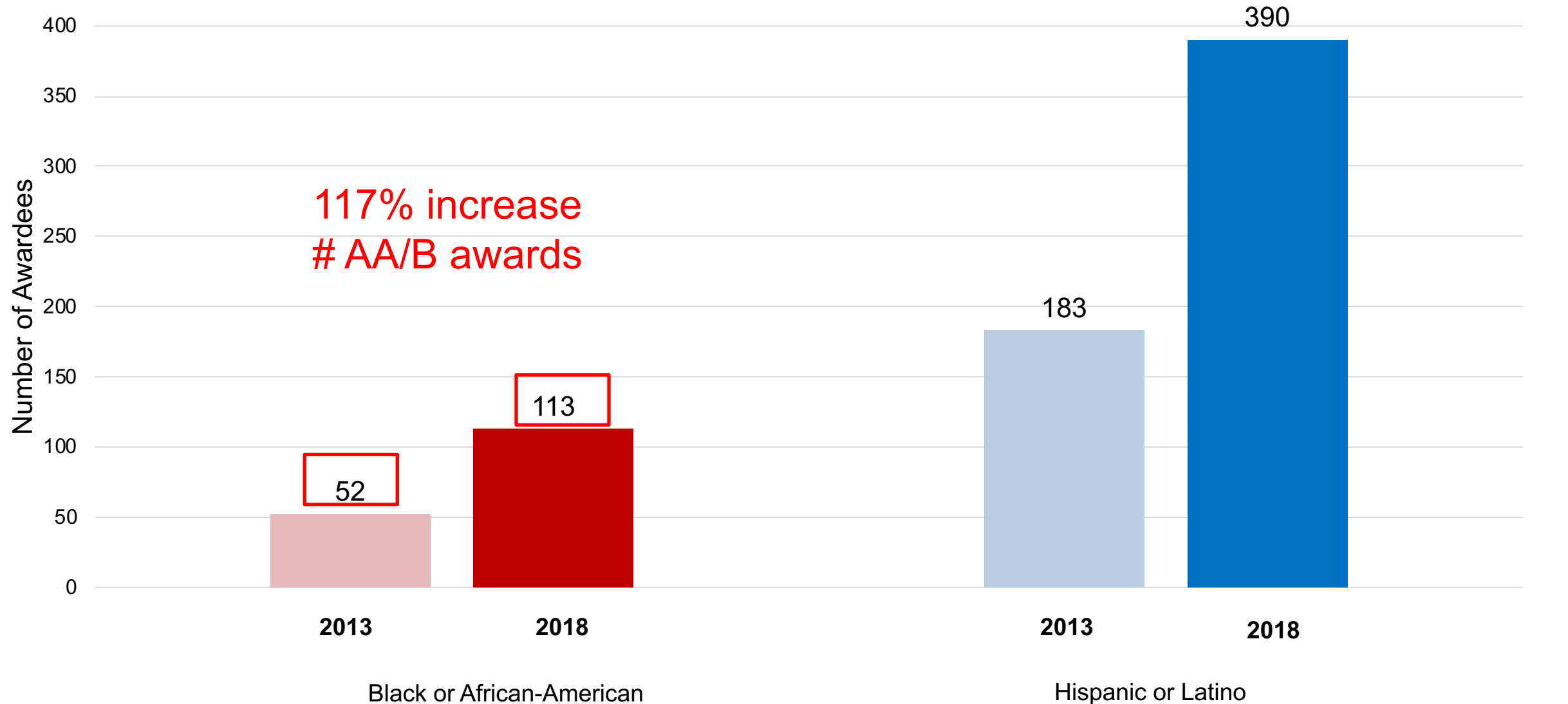
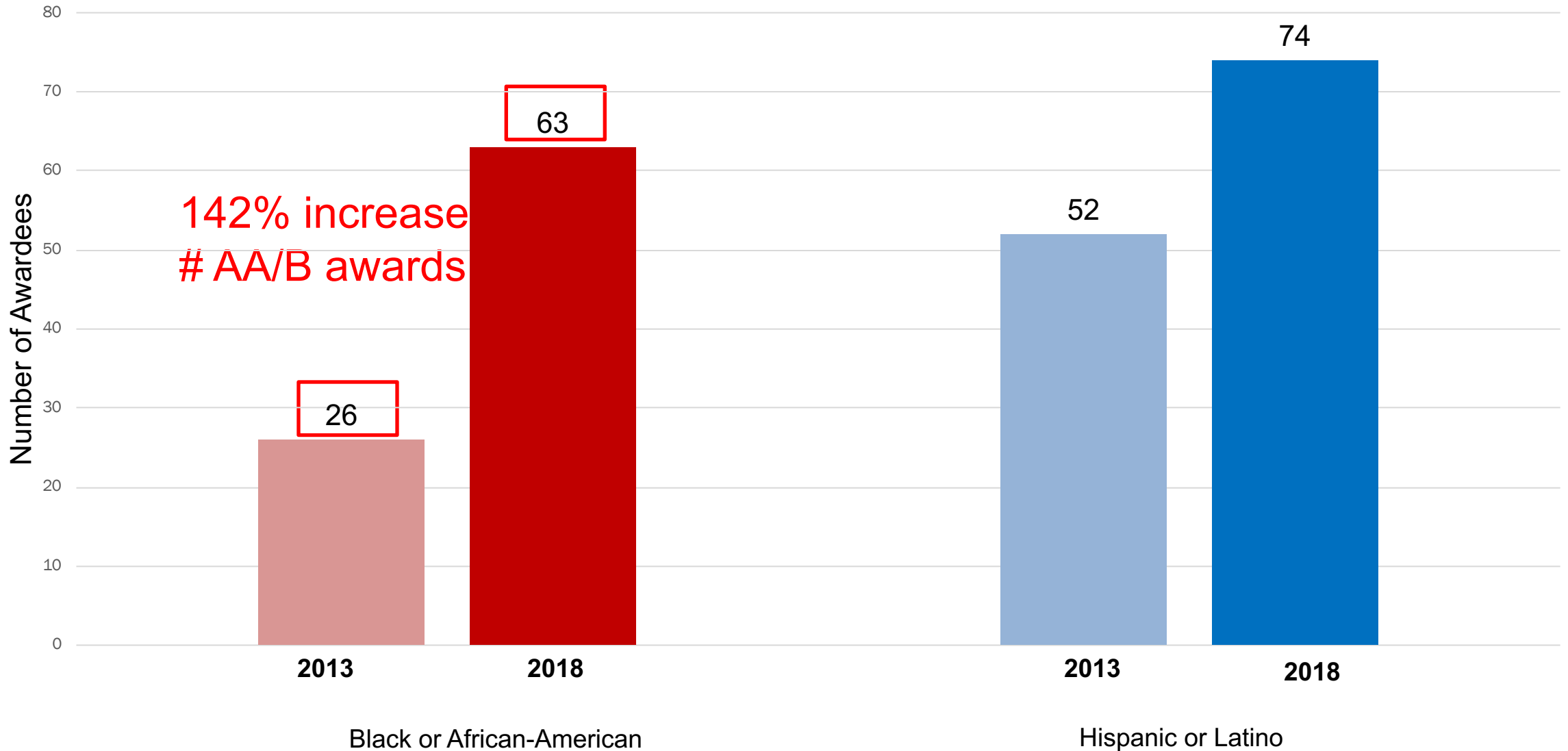# Funding Rates Mentored Career-Development (K-Series) Awardees*
Type 1 and Type 2: FY2013 and FY2018

2013

2018

* Principal Investigators

■ American Indian/ Alaska Native ■ Black or African-American ■ Hispanic or Latino ■ Asian ■ White

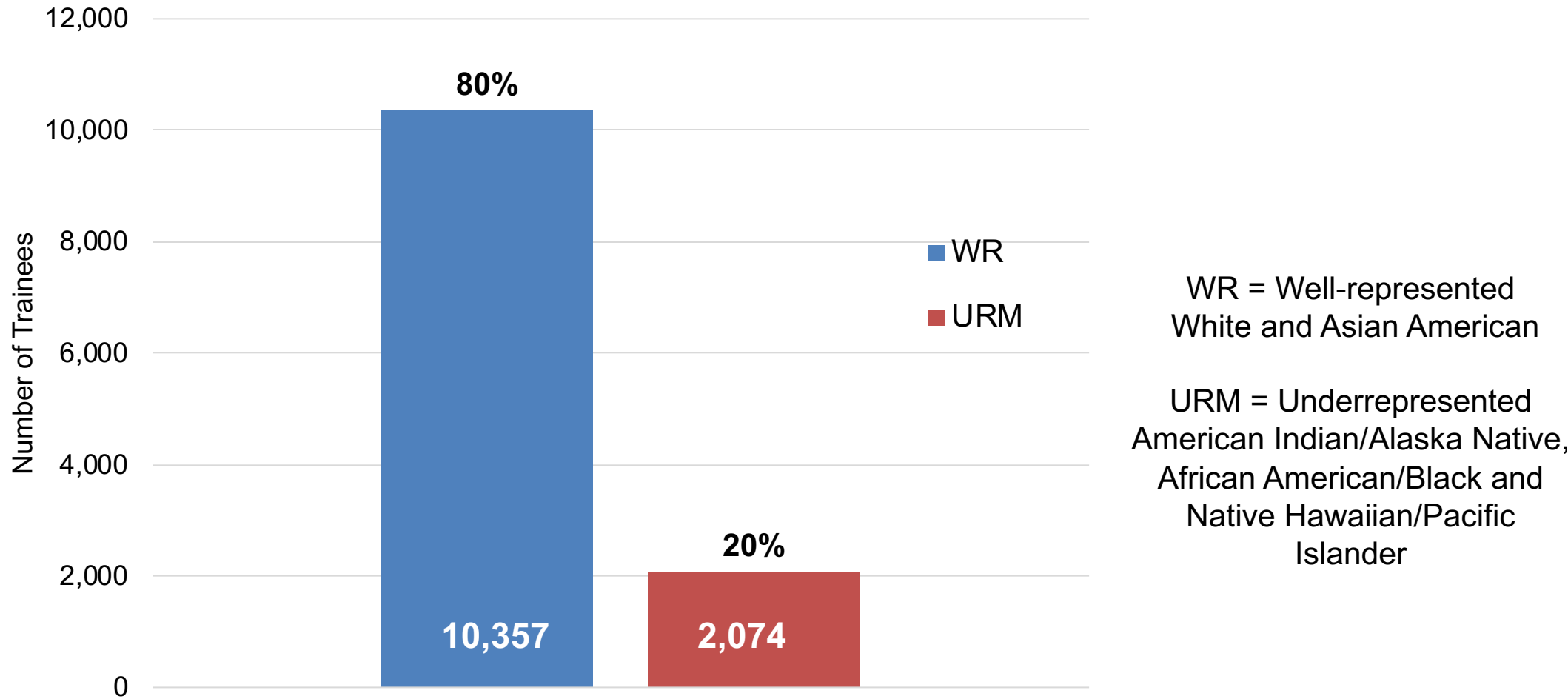# African-American and Hispanic/Latino K Awardees* (Type 1 and 2) FY2013 and FY2018

142% increase
AA/B awards

Number of Awardees

26

63

52

74

2013 2018
Black or African-American

2013 2018
Hispanic or Latino

* Principal Investigators

URMs Supported on Predoctoral and Postdoctoral Training* Grants (2018) Increased to 20% from 12% in 2012
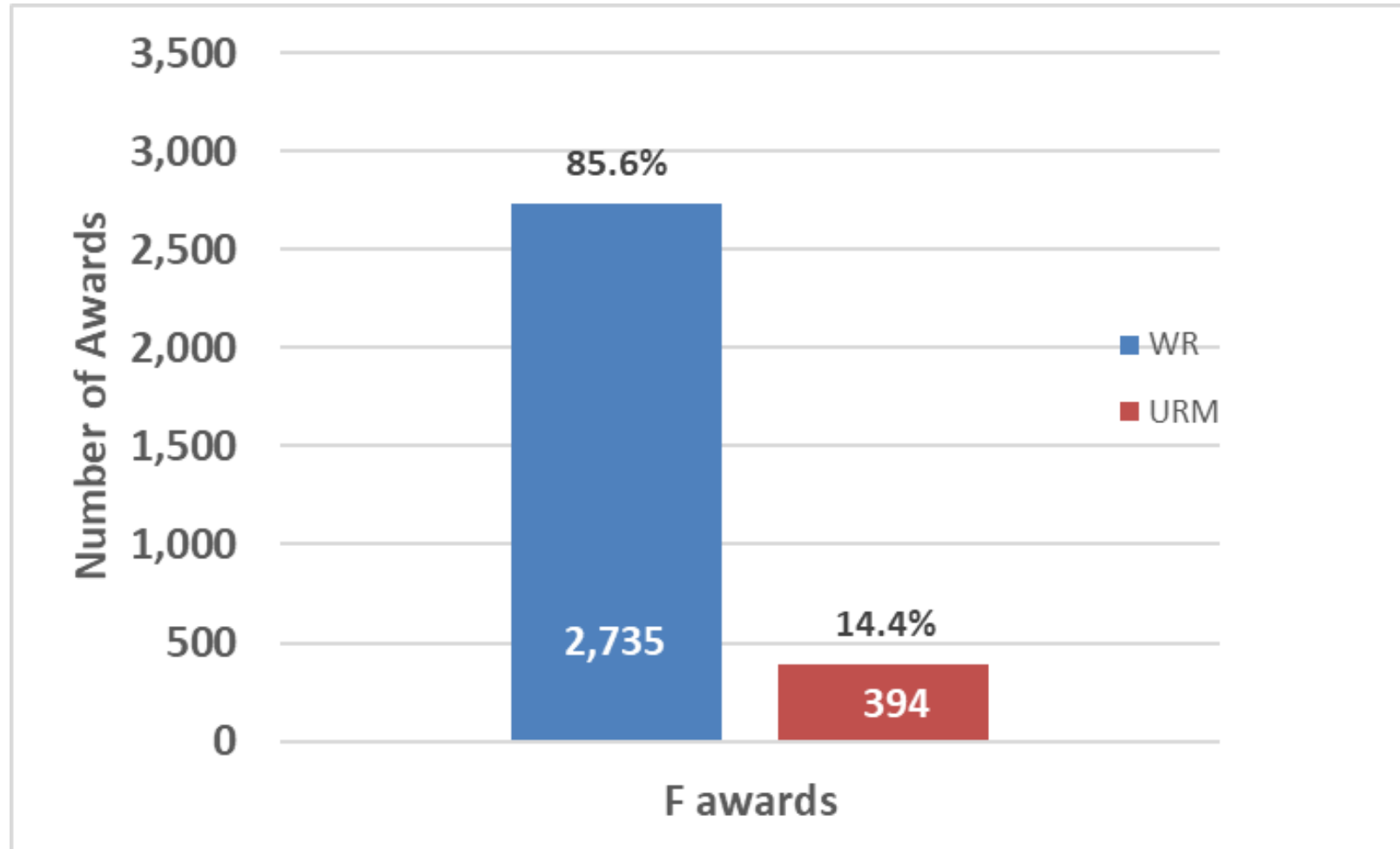
WR = Well-represented White and Asian American

URM = Underrepresented American Indian/Alaska Native, African American/Black and Native Hawaiian/Pacific Islander

* T15, T32, T34, T35, T90, TL1, TL4

PhD Recipients in NIH-Relevant Fields Increase in URM Representation (2012-2017)

Life Sciences					
Race/Ethnicity	Totals			Percentage	
	2012	2017	% Change	2012	2017
Hispanic or Latino	493	606	22.92%	6.17%	7.07%
American Indian or Alaska Native	24	25	4.16%	0.30%	0.29%
Asian	934	1,014	8.56%	11.68%	11.84%
Black or African American	448	577	28.79%	5.60%	6.74%
White	5,880	6,059	3.04%	73.56%	70.72%
More than one race	215	286	31.56%	2.69%	3.34%
Totals	7,994	8,567		100.00%	100.00%

Source: NSF Survey of Earned Doctorates 1997-2017

NIH Scientific Workforce Diversity 2014-2019 Actions and Progress

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- 2017 ACD recommendations focused on career-independence transition through institutional change

Great Minds Think Differently

NIH National Institutes of Health

NIH Scientific Workforce Diversity Strategic Plan 2016-2020
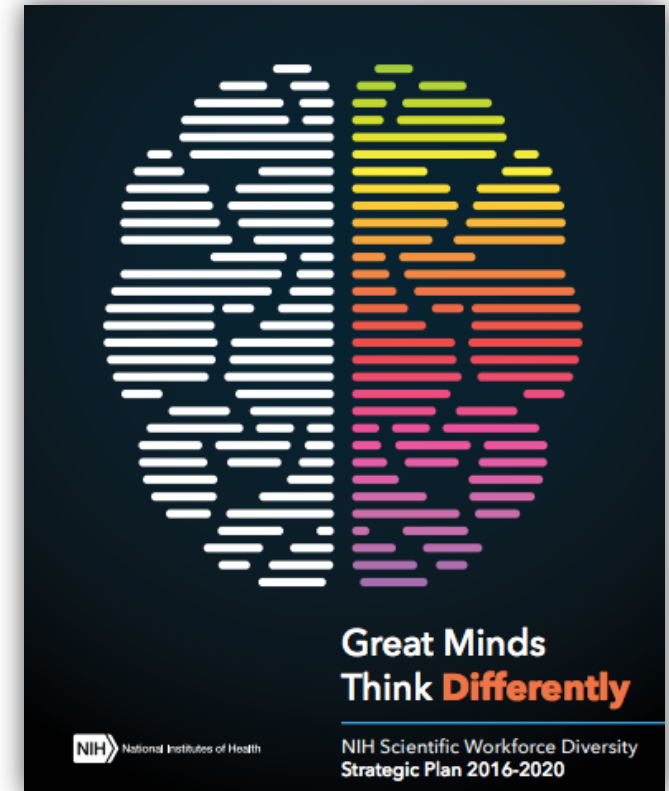
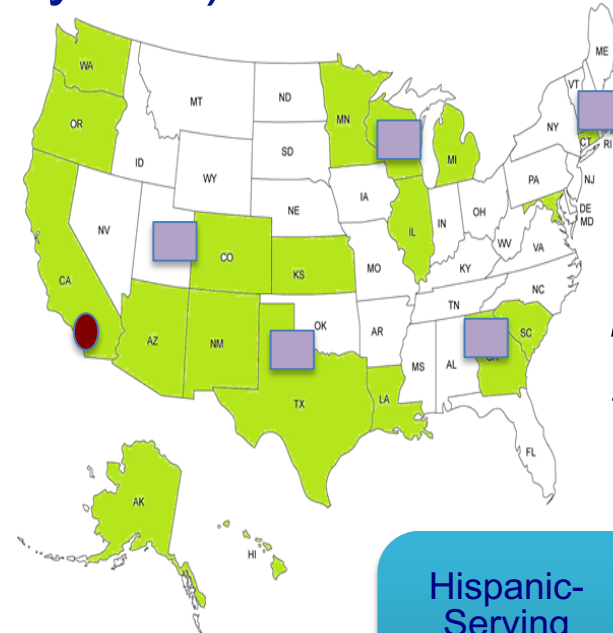**NIH Scientific Workforce Diversity Strategic Plan**

NIH Diversity Program Consortium

Building Evidence- Awards made October 2014
Total: $250 million (5 years)

BUILD: 10 sites/experiments

NRMN

CEC

BUILD Tested Interventions	NRMN Activities
• Stereotype threat	• Guided virtual mentorships
• Critical race theory	• MyNRMN tool
• Student entrepreneurship	• Mentors: 3,470*
• Living and learning communities	• Mentees: 5,690 *
	• Grantwriting/coaching - mentees: 546*
	• 152 awards granted (89 NIH awards)

Phase II begins July 2019

Hispanic-Serving Institutions*

Historically Black Colleges and Universities

Total of 10 Sites/Experiments

State Colleges

Public Universities
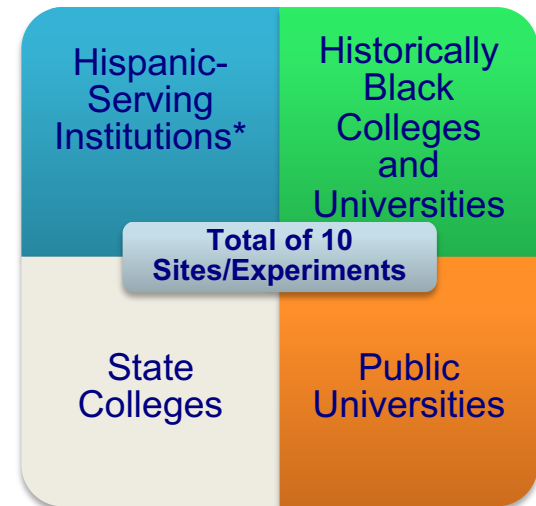
*Data as of January 2019   **Track record of training Hispanic students*

BUILD Dashboard (Years 1-5*)

Horizontal bar chart with axis from 0 to 4000 (gridlines at 0, 1000, 2000, 3000, 4000):

Student (blue bars)
- BUILD NRSA training slots (TL4): 2272 (Unique trainees: 1157)
- BUILD research training slots (RL5): 1080
- BUILD TL4 graduates (B.S./B.A.): 304
- BUILD TL4 Graduates Pursuing Post-Secondary Education: 164

Faculty (orange bars)
- Research Mentor Training (# non-unique participants): 3039
- Faculty Mentor Training (# activities): 146
- Faculty Professional Development (# activities): 152
- Faculty Release Time (# participants): 248
- Pilot Projects: 199

Institution (green bars)
- Publications**: 259
- Institutional Partner Agreements: 113
- Novel Curriculum: 104

*Data from YR5 is interim ~through Dec. 2018

BUILD NRSA Demographics

Unknown / Withheld 2%

White, Non-Hispanic 12%

Hispanic 41%

Black, Non-Hispanic 27%

American Indian, Alaska Native, Pacific Islander, or Multiple Races 6%

Asian, Non-Hispanic 12%
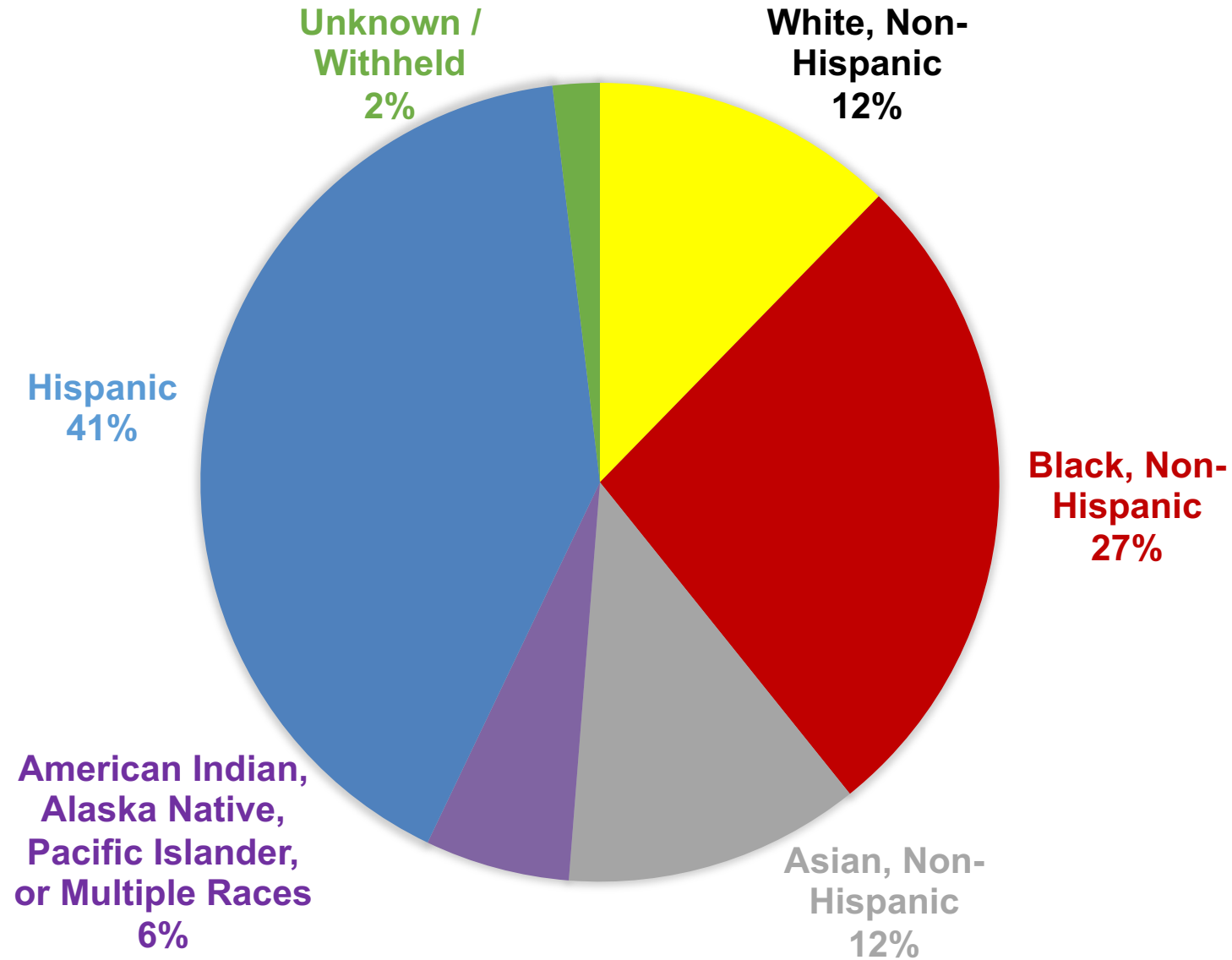
Spring 2019 data n=1138

NRMN Grantwriting/Coaching Program
By the Numbers

6   **Grant writing/coaching programs (GCPs)**

546   **Investigator participants in all GCPs**

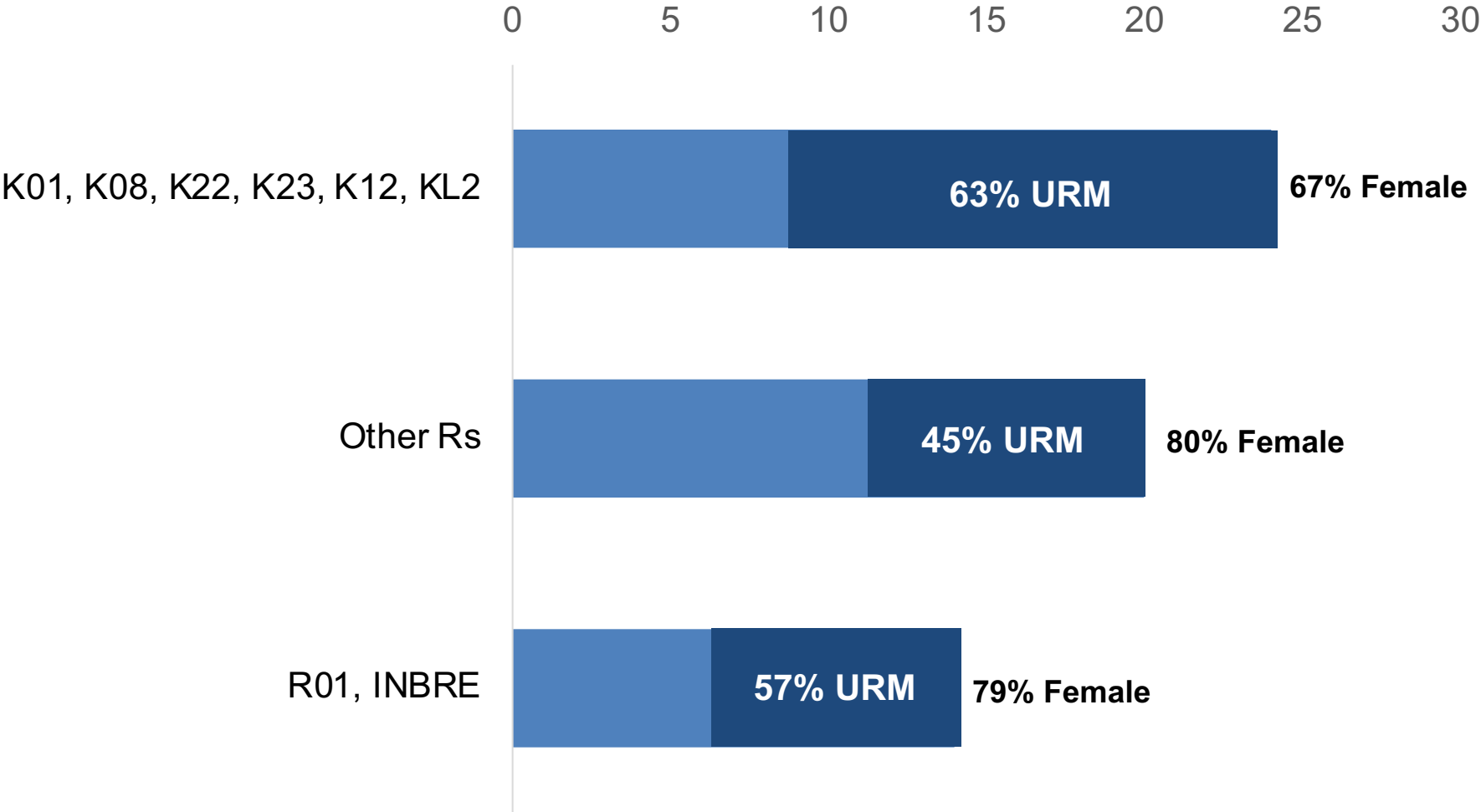**89**   **NIH awards (71%URG, 73% Women)**

152   **Awards (NIH + non-NIH)**

$65M   **Total NIH funds across GCPs**

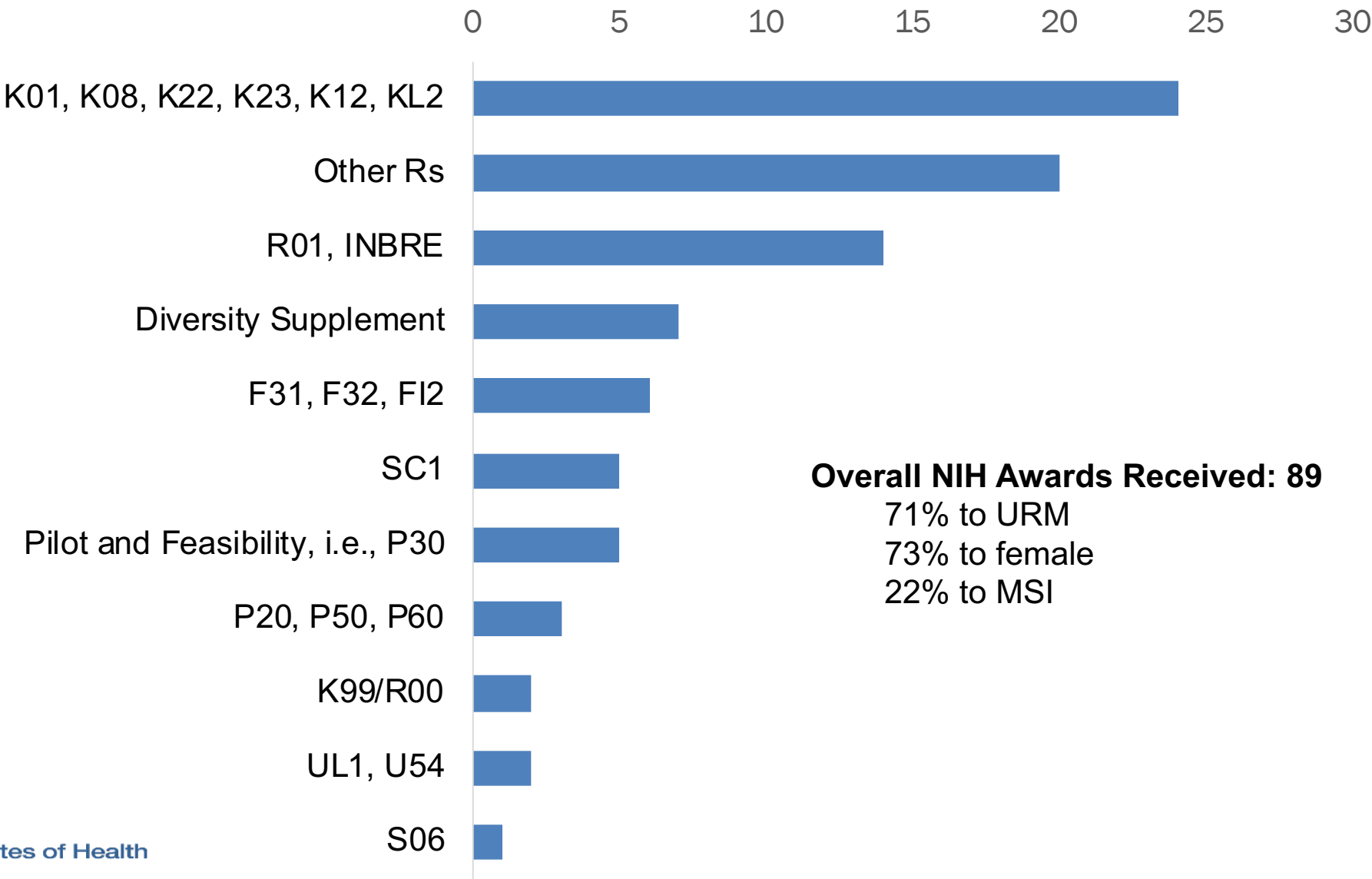# NRMN Demographics of Grantwriting/Coaching Participants
Grant Recipients (top categories)*

*Note: Although generally NIH awards are made to institutions, as the applicants and awardees of NIH funding, for purposes of this presentation, the terms "applications," "applicants," and "awardees" reference those individuals designated as senior/key personnel on NIH applications and/or awards, respectively.

NIH Awards to NRMN Grantwriting/Coaching Participants
Details by Award Types

Overall NIH Awards Received: 89
71% to URM
73% to female
22% to MSI

DPC Timeline

Phase I: Develop and implement interventions & evaluations; publish early findings

$250 million committed over 5 years

| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |

Developing, planning

Implementing interventions, collecting data

Phase II: Focus on continuing interventions, tracking and evaluations, as well as sustainability and dissemination

| Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |

Issued funding announcements

Review applications, make awards

DIVERSITY PROGRAM CONSORTIUM
Supported by the National Institutes of Health

Tracking and Evaluation of Diversity Metrics Coordination and Evaluation Center (CEC)

FIGURE 1. MEAN SCIENCE IDENTITY SCORES - BUILD AND NON-BUILD STUDENTS IN DIFFERENT TYPES OF BIOMEDICAL MAJORS
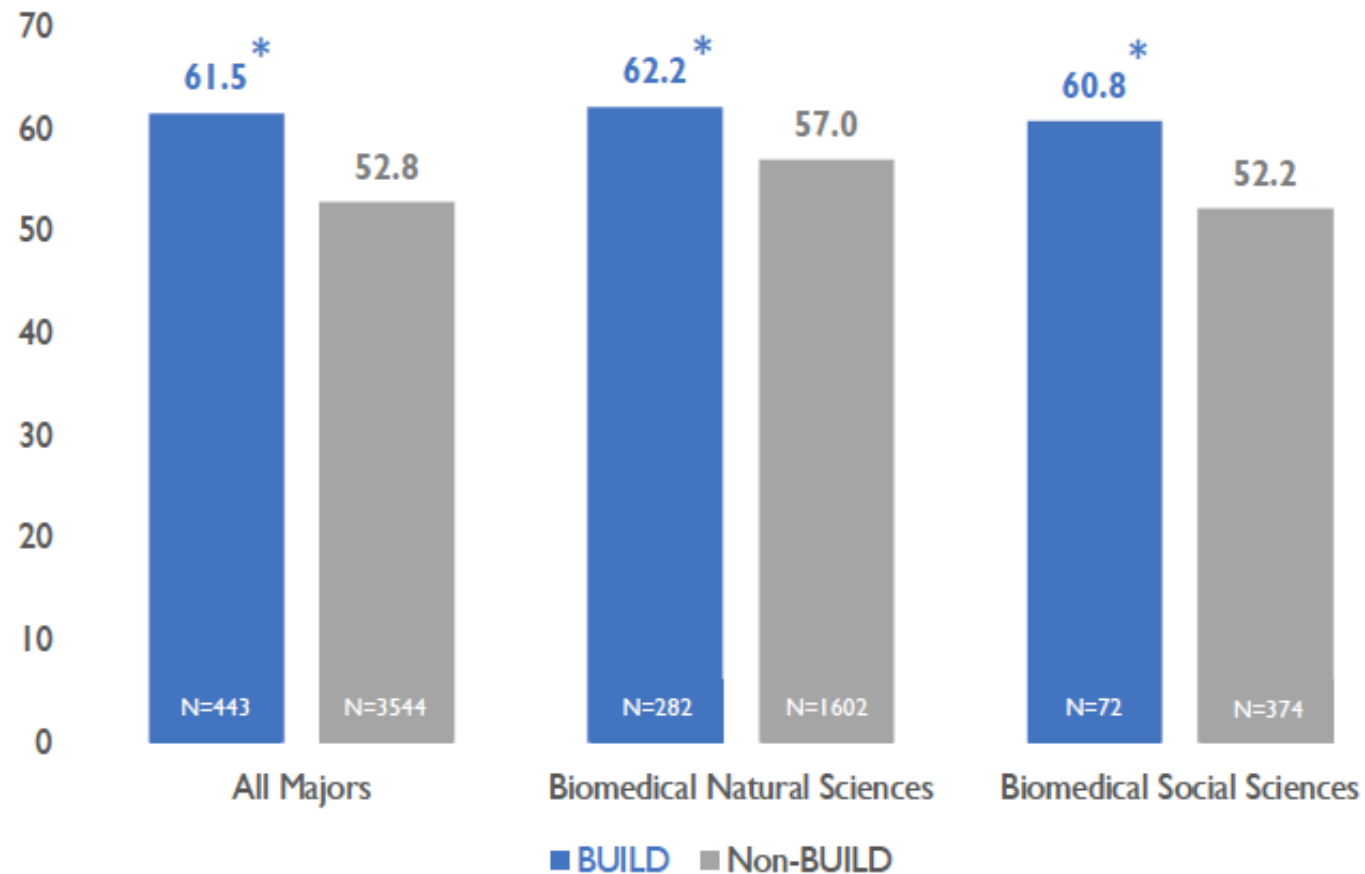
* $p < .001$

BUILD   Non-BUILD

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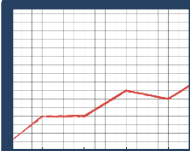
Great Minds Think Differently

NIH Scientific Workforce Diversity Strategic Plan 2016-2020
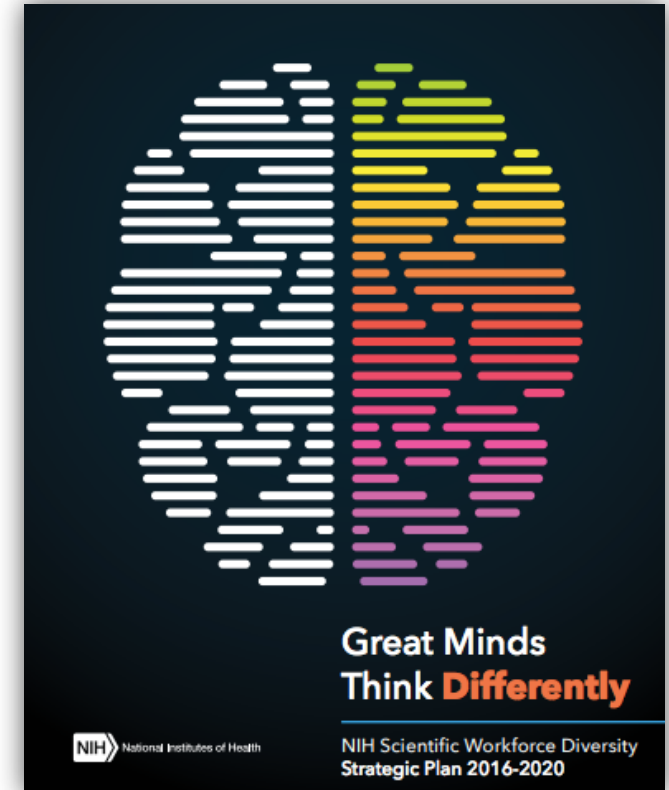
NIH Scientific Workforce Diversity Strategic Plan

2018 ACD WGD Recommendations (endorsed by ACD):
Implementation Update

RESULTS-BASED ACCOUNTABILITY

1 Diversity/inclusion metrics reporting template

FACULTY INSTITUTIONAL RECRUITMENT FOR SUSTAINABLE TRANSFORMATION (FIRST)

2 Career-independence transition: Faculty-development institutional FOA for cohort model

NIH ADVANCING DIVERSITY PROGRAMS CONFERENCE (JUNE 24, 2019)

3 National diversity/inclusion conference

ENHANCE MENTORING AND PROFESSIONAL DEVELOPMENT

4 Diversity supplements: Trans-agency standards

Decoupling the Minority PhD Talent Pool and Assistant Professor Hiring

Gibbs, K. D., et al. (2016). *Decoupling the minority PhD talent pool and assistant professor hiring in the medical school basic science departments in the US.*
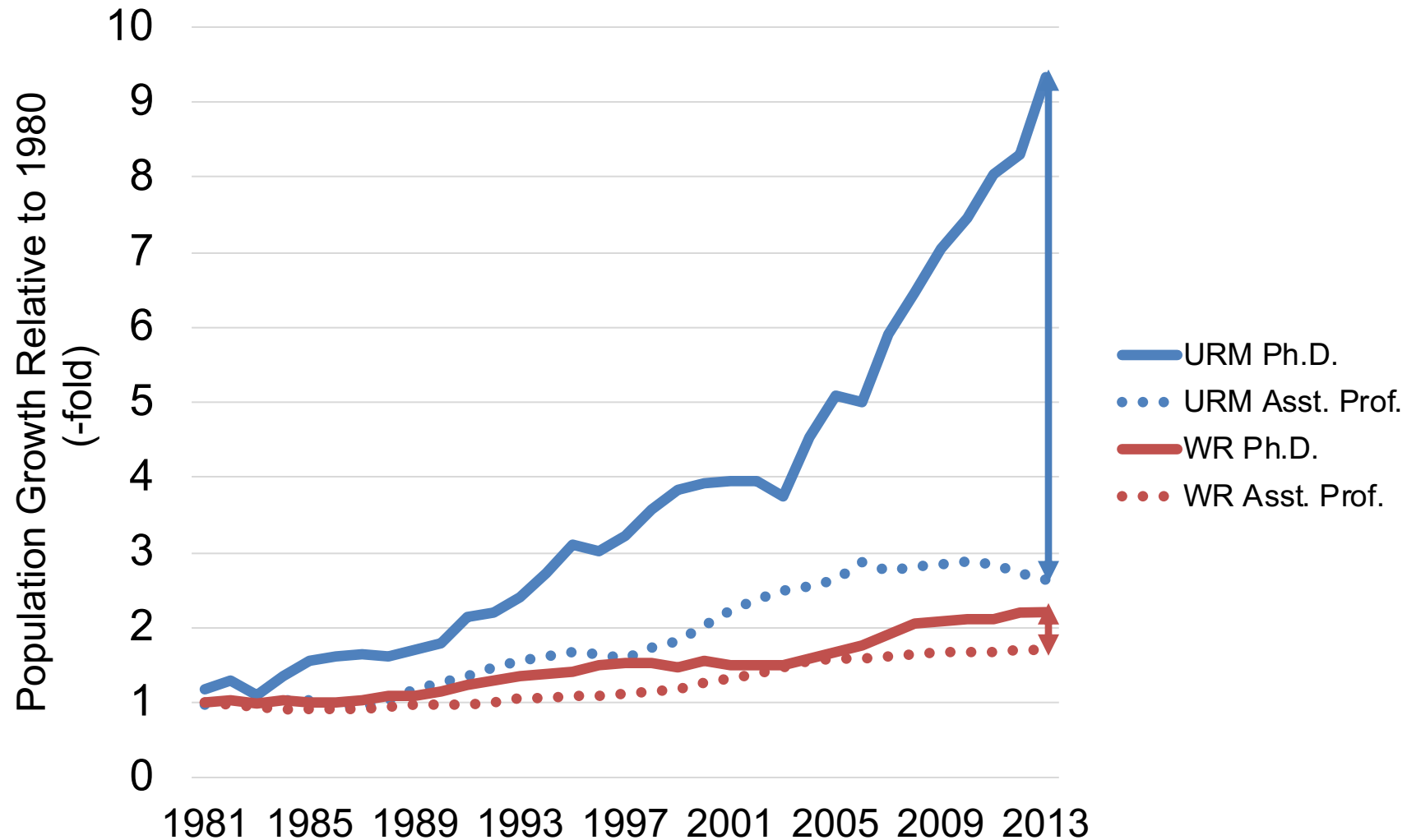
NIH Distinguished Scholars Program Goals:
Cohort Model in NIH's Intramural Research program

- Institutional transformation by recruiting a substantial number of PIs with demonstrated commitment to inclusive excellence (15 per year)

- Build self-reinforcing community of PIs committed to diversity and inclusion

- Provide professional development and culture that values mentoring and inclusion

- Send the message that NIH values a commitment to inclusive excellence

Extramural: Request for Information (RFI): Institutional Accountability to Promote Inclusive Excellence
Release Date : February 25, 2019; **Response Date:** June 14, 2019

<u>F</u>aculty <u>I</u>nstitutional <u>R</u>ecruitment for <u>S</u>ustainable <u>T</u>ransformation

FIRST Program Goals

- Promote inclusive excellence

  - Address racial/ethnic, gender gaps in postdoc > faculty transitions

- FIRST would be the first nationwide attempt to enhance inclusive excellence through NIH-funded institutional transformation

  recruitment, outreach, implicit bias education, mentoring, career development

- Institutional transformation

  - Recruit critical mass of PIs with demonstrated commitment to diversity and inclusion

- Professional development and culture that values mentoring and inclusion

  - Institution sends message that it values diversity and inclusion

Progress on Key Data Points (2018) Summary

- **Research Grants - R01**
  - Increase in # URG applicants
  - Increase in # awardees and award rate
  - B/AA – White gap slightly narrowed

- **Mentored Career development – K series**
  - Increase # URG applicants, # awardees and award rate
  - B/AA – White gap significantly narrowed

- **Predoctoral and postdoctoral fellowships**
  - Increase in # URGs

- **PhD recipients (Life science, chemistry, math)**
  - Increase in # URGs (14% of pool)

Great minds think differently …

QUESTIONS AND DISCUSSION